

## CLAIMS

1. A  $\beta$ -chitin complex comprising an inclusion compound formed by using a  $\beta$ -chitin as a host and a guest compound which is a compound having a functional group that can form a hydrogen bond with a hydroxyl group and/or an amide group of the  $\beta$ -chitin and having a melting point of at least 60°C.  
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2. The  $\beta$ -chitin complex of claim 1, wherein the guest compound is an organic compound or an organometallic compound.  
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3. The  $\beta$ -chitin complex of claim 1 or 2, wherein the functional group has at least one atom selected from the group consisting of oxygen, nitrogen, sulfur, and halogen atoms.  
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4. The  $\beta$ -chitin complex of any one of claims 1 to 3, wherein the functional group is at least one functional group selected from the group consisting of a hydroxyl group, an aldehyde group, a carboxyl group, a carbonyl group, an ether bond, an ester bond, a ketal bond, an amino group, an amidino group, an imino bond, a diazo bond, an amide group, an amide bond, an imino ether bond, a mercapto group, a thiocarbonyl group, a thioaldehyde group, a thioester group, a thioether bond, a thioketal bond, and a halogenated alkyl group.  
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- 25 5. The  $\beta$ -chitin complex of any one of claims 1 to 4, wherein the guest compound has a plurality of functional groups.

6. The  $\beta$ -chitin complex of any one of claims 1 to 5, wherein the guest compound is a saccharide having a plurality of hydroxyl groups.

7. The  $\beta$ -chitin complex of any one of claims 1 to 6, wherein the guest compound is at least one compound selected from the group consisting of vitamins, coenzymes, hormones, antibiotics, neurotransmitters, intercellular mediators, immune reaction inhibitors, immune reaction accelerators, enzyme inhibitors, organic physiologically active substances, insecticides, antibacterial agents, aromatics, spices, and seasoning agents.

8. A method for producing a  $\beta$ -chitin complex composed of an inclusion compound containing a  $\beta$ -chitin as a host, comprising:

heating a guest compound having a functional group that can form a hydrogen bond with a hydroxyl group and/or an amide group of a  $\beta$ -chitin and having a melting point of at least 60°C to the melting point or to a temperature higher than the melting point but lower than 250°C to prepare a melt of the guest compound; and

immersing an anhydrous  $\beta$ -chitin in the melt.

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9. A method for producing a  $\beta$ -chitin complex composed of an inclusion compound containing a  $\beta$ -chitin as a host, comprising:

dissolving or suspending a guest compound having a functional group that can form a hydrogen bond with a hydroxyl group and/or an amide group of a  $\beta$ -chitin in a solvent to prepare a guest carrier solution; and

immersing a  $\beta$ -chitin in the guest carrier solution.

10. The method for producing a  $\beta$ -chitin complex of claim 9, wherein the solvent is a poor solvent for the guest compound.

5 11. The method for producing a  $\beta$ -chitin complex of claim 9 or 10, wherein the solubility of the guest compound in the solvent is 5 wt% or less.

12. The method for producing a  $\beta$ -chitin complex of any one of claims 9  
10 to 11, wherein the solvent is an organic solvent.

13. A method for producing a  $\beta$ -chitin complex composed of an inclusion compound containing a  $\beta$ -chitin as a host, comprising:

allowing an undesired guest compound to be included in a  
15  $\beta$ -chitin in advance; and

adding a desired guest compound so as to substitute the same for the undesired guest compound, thereby allowing the desired guest compound to be included in the  $\beta$ -chitin.

20 14. The method for producing a  $\beta$ -chitin complex of claim 13, wherein the substitution of the desired guest compound for the undesired guest compound is performed by a process comprising:

a step of dissolving or suspending a desired guest compound in a solvent to prepare a guest carrier solution; and

25 a step of immersing a  $\beta$ -chitin including the undesired guest compound in the guest carrier solution.